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Attorney Docket P04860US0

REMARKS**Overview**

Claims 1-5 and 15-16 are pending in this application. Claims 1 and 15 have been amended and claim 16 is new. The present response is an earnest effort to place all claims in proper form for immediate allowance. Reconsideration and passage to issuance is respectfully requested.

Issues Under 35 U.S.C. § 103

Claims 1 and 3-5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Copetti et al. (US 2001/0017770) in view of U.S. Patent No. 5,076,906 to DerMarderosian, Jr. or U.S. Patent No. 5,940,110 to Nakamura et al.

Copetti teaches a module that includes a thin film circuit. To realize the module with thin film circuit, capacitors, or capacitors and resistors, or capacitors, resistors and inductors are provided next to the conductive tracks directly on a substrate of an insulating material (Abstract). To further distinguish over Copetti, claim 1 has been amended to include that each thin film chip resistors is a "discrete component." This limitation is supported by the Specification as originally filed, including disclosure that the film chip resistor can be a 1206-size wrap around termination chip resistor (Specification, page 5, line 30-31). Such a thin film chip resistor is a discrete component. Copetti does not disclose "discrete component thin film chip resistors" as required by claim 1. In fact, Copetti, the Examiner's primary reference, clearly teaches away from "discrete component thin film chip resistors" as Copetti is directed toward a module that provides for partial or full integration of passive elements. This runs counter to the "discrete component thin film chip resistors" of claim 1. Copetti is directed towards more than a single resistor.

Vincent

Attorney Docket P04860US0

The fact that Copetti is directed towards a module and not a discrete component thin film chip resistor is a very significant difference. The Applicant understands that Copetti can include resistors, but the fact of the matter is that claim 1 is directed towards manufacturing discrete, singular chip resistors. Copetti is directed towards a module with multiple components and this use of multiple components is what drives the design in Copetti, including why tantalum pentoxide (or another dielectric) is used. The very result of the Applicant's methodology is a discrete component thin film chip resistor which is the very antithesis of the intended device manufactured in Copetti. Moreover, the use of tantalum pentoxide in Copetti is merely as a dielectric, for which Copetti contemplates numerous substitutes (Copetti, paragraph 63).

Furthermore, the module of Copetti is different from the structure of the discrete component thin film chip resistor manufactured according to the methodology of claim 1. In claim 1, the moisture barrier is "an outer moisture barrier". The Examiner mistakenly equates the dielectric layer 3 of Copetti with the "moisture barrier" of claim 1. An internal dielectric layer between a resistance layer 7 and an electrically conductive layer 2 cannot serve as an outer moisture barrier, as it would not protect the electrically conductive layer 2 from electrolytic corrosion. To make clear that the "outer moisture barrier" protects from electrolytic corrosion, claim 1 has been amended to add the limitation of "wherein the outer moisture barrier reduces failures due to electrolytic corrosion under powered moisture conditions". Copetti does not disclose a structure that would provide this benefit because in Copetti an electrically conductive layer 2 is not protected by a moisture barrier and the electrically conductive layer 2 is electrically connected to the resistance layer. Therefore this rejection to claim 1 should also be withdrawn for this independent reason. Copetti discloses the use of tantalum pentoxide, but it is clearly being used in a different way (between conductive layers) for a different purpose (as a dielectric).

Vincent

Attorney Docket P04860US0

Therefore, there are significant differences between Copetti and the invention of claim 1. The present invention provides for manufacturing chip resistors, and Copetti's module teaches away from that notion.

In addition, as the Examiner has recognized, Copetti does not disclose exposing thin film chip resistors to powered moisture conditions and observing failures due to electrolytic corrosion under powered moisture conditions (Office Action, page 3, last paragraph). Copetti does not disclose this because Copetti is not using tantalum pentoxide as a moisture barrier—rather Copetti is using tantalum pentoxide as one possible type of material to use as a dielectric. It is further noted that Copetti does disclose a protective layer that is provided over the entire thin-film circuit (Copetti, paragraph 63). Yet, this protective layer is not disclosed to be tantalum pentoxide (Copetti, paragraph 63). Thus, Copetti teaches even further away from claim 1 as Copetti acknowledges the use of tantalum pentoxide as a dielectric to insulate layers but teaches that other materials should be used as outer protective layers.

Given these significant differences between Copetti and claim 1 and given that Copetti's teachings are in direct opposition to the invention of claim 1, it is respectfully submitted that any rejections to claim 1 where Copetti is a primary reference should be withdrawn.

The Examiner combines Copetti with either DerMarderosian, Jr. or Nakamura. DerMarderosian, Jr. discloses a method for detecting and documenting flaws in the glassivation layer protecting the active device region of an integrated circuit (Abstract). Nakamura discloses a thermal head and method for manufacturing the thermal head (Abstract). Therefore, neither reference is directed towards forming "discrete component thin film chip resistors" as required by claim 1. Therefore, these rejections must be withdrawn as none of the references in the rejection are directed towards or disclose discrete component thin film chip resistors.

Vincent

Attorney Docket P04860US0

It is further noted that the Examiner has also failed to make a *prima facie* case of obviousness because the Examiner has not articulated any proper motivation or suggestion to combine Copetti with DerMarderosian, Jr. or Nakamura. "The factual inquiry whether to combine references must be thorough and searching." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). It is believed that the Examiner is merely falling victim to hindsight-based obviousness which the Federal Circuit has specifically warned against. See *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.").

With respect to DerMarderosian, Jr. et al, the Examiner looks to col. 3, lines 1-5 for the motivation or suggestion to combine with Copetti (Office Action, p. 4). The Examiner has indicated that the motivation for testing the module of Copetti under powered moisture conditions is that it allows for providing for a test that is less costly, more accurate, less time consuming and does not involve the use of hazardous chemicals (Office Action, p. 4). The Examiner's purported motivation or suggestion to combine is simply in error. In particular, the Examiner has not explained why electrolytic corrosion under powered moisture conditions would be of particular interest in Copetti.

With respect to Nakamura, the Examiner indicates that the motivation or suggestion to combine is that testing allows for a determination if the passivation film is corrosion resistant (Office Action, p. 5). In Nakamura, there was a problem of moisture ions associated with thermosensible paper leading to electrolytic corrosion. That is what drove the need for a test is driven by the problems of the thermal head of Nakamura. The Examiner's purported motivation

Vincent

Attorney Docket P04860US0

or suggestion to combine is simply in error. In particular, Nakamura is directed towards a thermal head while Copetti is directed towards a module. Therefore, Copetti would not be concerned about moisture ions associated with thermosensible paper leading to electrolytic corrosion. The Examiner has not explained why electrolytic corrosion under powered moisture conditions would be of particular interest in Copetti.

Therefore, the rejection to claim 1 should be withdrawn for these independent reasons. As claims 3-5 depend from claim 1, it is respectfully submitted that these rejections should also be withdrawn.

Claim 2 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Copetti in view of DerMarderosian, Jr. or Nakamura as applied to claims 1 and 3-5 and further in view of U. S. Patent No. 4,002,542 to Young et al. The Examiner relies upon Young to disclose depositing tantalum pentoxide by sputtering (Office Action, page 5-6). Young is directed towards a capacitor and not a resistor. The tantalum oxide of Young is used as a dielectric in a capacitor, not as a moisture barrier in a resistor. Young does not disclose "discrete component thin film chip resistors". The Examiner indicates that the motivation for depositing the tantalum pentoxide layer through sputtering is that it allows for depositing a film without reduced electrical series resistance, relying upon column 1, lines 32-35 of Young. The Examiner still fails to indicate why anyone skilled in the art designing a discrete component thin film chip resistor would have any concern whatsoever with reducing electrical series resistance (ESR), a characteristic associated with a capacitor and not a resistor. In capacitors, it would be ideal to eliminate ESR in the insulating dielectric. The Examiner purported motivation simply does not apply to a discrete component thin film chip resistor, it applies to capacitors. Therefore, the Examiner has failed to make any *prime facie* case of obviousness as there is no proper

Vincent

Attorney Docket P04860US0

motivation or suggestion to combine Young. It is clear that the Examiner is merely applying improper hindsight reconstruction. Therefore, this rejection must be withdrawn for this independent reason.

Claim 1 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,777,583 to Minami et al. in view of U.S. Patent No. 5,076,906 to DerMarderosian, Jr. or U.S. Patent No. 5,940,110 to Nakamura. The deficiencies of Nakamura and DerMarderosian, Jr. have already been discussed. Minami is directed towards a thermal head (Title) and not a chip resistor. It is also noted that claim 1 has been amended to explicitly require forming "discrete component thin film chip resistors". The fact that a thermal head has resistive elements does not make it a "discrete component thin film chip resistor". Therefore this rejection to claim 1 must be withdrawn as none of the references cited disclose forming a "discrete component thin film chip resistor".

The Examiner has rejected claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Minami in view of DerMarderosian, Jr. or Nakamura as applied to claim 1, and further in view of Young. As previously expressed, none of these references are directed towards forming a plurality of "discrete component thin film chip resistors". Minami is a thermal head (Title). Nakamura is also directed towards a thermal head (Abstract). DerMarderosian, Jr. is directed towards testing an integrated circuit (Abstract). Young is directed towards a capacitor (Abstract). Therefore, this rejection must be withdrawn as these references alone or in combination do not disclose each and every element of claim 1.

Further, this rejection must be withdrawn because the Examiner is relying upon improper motivation. The Examiner's motivation for sputtering tantalum pentoxide is to deposit a film without reduced electrical series resistance (Office Action, page 10). As previously explained,

Vincent

Attorney Docket P04860US0

although reduced electrical series resistance is a desirable quality in a capacitor (which is what Young is directed towards), it is not a relevant characteristic of the "discrete component thin film chip resistors" of the Applicant's invention. Therefore it is respectfully submitted that this rejection must be withdrawn.

Claims 3-5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Minami in view of DerMarderosian, Jr. or Nakamura as applied to claim 1 and further in view of Oki Electric Ind Co Ltd (Japan 52-3196) (Office Action, page 11). Oki Electric teaches that resistance layers can be made from metals such as nichrome. However, for the reasons previously expressed, Minami, DerMarderosian, Jr., and Nakamura are deficient.

It is also noted that Oki Electric is directed towards manufacturing a different type of resistor. In Oki Electric, first there is a resistance layer on a substrate, then an oxidation preventing layer of silicon dioxide or alumina on the resistance layer and then a metal oxidation preventing layer and then a layer of tantalum pentoxide on the metal layer. Claim 1, which claims 3 and 5 depend from, requires "an outer moisture barrier consisting of tantalum pentoxide directly overlaying and contacting the metal film resistive layer." Oki Electric does not disclose this structural configuration. In addition, Oki Electric does not indicate that there is a moisture barrier to reduce failures due to electrolytic corrosion under powered moisture conditions. Therefore, as claims 3-5 depend from claim 1, and none of the references alone or in combination disclose each and every limitation of claim 1, it is respectfully submitted that these rejections should be withdrawn.

Claim 15 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U. S. Patent No. 4,617,575 to Fuyama et al. in view of U.S. Patent No. 5,076,906 to DerMarderosian,

Vincent

Attorney Docket P04860US0

Jr. or U.S. Patent No. 5,940,110 to Nakamura and Sato (Japan 61-27264) and Oki Electric (Japan 52-3196).

Fuyama is also directed towards a thermal head (Title) and not a "discrete component thin film chip resistor" as required by claim 15. The Examiner has also already recognized differences that (1) Fuyama does not disclose the resistive film being a metal film, and (2) does not disclose exposing the thin film chip resistors to powered moisture conditions or (3) observing failures due to electrolytic corrosion under powered moisture conditions (Office Action, page 12). The deficiencies of DerMarderosian, Jr., Nakamura, and Oki Electric have already been discussed. Sato is also directed towards a thermal head, and not to "discrete component thin film chip resistors". Therefore, this rejection to claim 15 should be withdrawn.

Claim 15 has also been rejected under 35 U.S.C. § 103(a) as being unpatentable over Copetti (U.S. Pat. Pub. 2001/0017770) in view of U.S. Patent No. 4,617,575 to Fuyama and U.S. Patent No. 5,076,906 to DerMarderosian, Jr. or U.S. Patent No. 5,940,110 to Nakamura. The deficiencies of Copetti have already been discussed. In particular, Copetti is directed towards a module and not towards a discrete component thin film chip resistor. Fuyama is directed towards a thermal head, not a discrete component thin film chip resistor. Therefore, it is respectfully submitted that this rejection should be withdrawn.

Response to Examiner's Remarks

The Applicant maintains that Copetti is drawn to a very different type of device. Copetti shows the production of a module with a thin film circuit which includes multiple capacitors, capacitors and resistors, or capacitors, resistors and inductors. Copetti simply does not disclose a single resistor, but rather multiple resistors and other components as a part of the same circuit which is modularized. It is not directed towards a discrete component thin film chip resistor.

Vincent

Attorney Docket P04860US0

Moreover in Copetti, in addition to the resistive layers there are conductive layers which are required because Copetti has different circuit elements within the same module. Because of the presence of these conductive layers, Copetti does not show the claimed structure of the resistors of the Applicant's invention.

New Claim

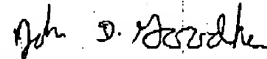
Claim 16 is a new claim, similar to claim 1, but does not disclose the "exposing" and "observing" steps.

Therefore, it is respectfully submitted that all pending rejections should be withdrawn and the Examiner should find all claims allowable.

No fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,



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